

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants: Walker et al.

Application No.: 09/076,409

Filed: May 12, 1998

For: METHOD AND APPARATUS FOR
GENERATING A COUPON

)
) Group Art Unit: 2764
)
) Examiner: Y. Retta
)
) **APPEAL BRIEF**
)
) Attorney Docket No. 97-563
)
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Dated: 01/05/01 By: N. Sahadeo

Nalini P. Sahadeo

**BOARD OF PATENT APPEALS
AND INTERFERENCES**

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Appellants hereby appeal to the Board of Patent Appeals and Interferences from the decision of the Examiner in the Final Office Action mailed January 5, 2000 (Paper No. 8), rejecting claims 1 - 59.

REAL PARTY IN INTEREST

The present application is assigned to Walker Digital, LLC, One High Ridge Park,
Stamford, CT 06905-1325.

RELATED APPEALS AND INTERFERENCES

No other appeals or interferences are known to Appellants, Appellants' legal representative, or assignee which will directly affect, be directly affected by or have a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 1 - 59 are pending in the present application. All of the pending claims stand rejected under 35 USC § 101 as being directed to non-statutory subject matter. None of the pending claims have been rejected on any other basis.

Claims 1 - 59 are being appealed.

STATUS OF AMENDMENTS

No amendments have been filed subsequent to final rejection.

SUMMARY OF INVENTION

Embodiments of the present invention are directed to generating coupons that allow a business to more effectively promote its various objectives. (Specification, page 2, lines 10 - 11).

According to one embodiment, a customer may be offered, for his change due, a voucher which is redeemable for a product or a discount thereon (hereinafter a "coupon"). The coupon

may, but need not, have a value to a customer which is greater than the value of the change exchanged therefor. By providing coupons for change in accordance with the present invention, a business can, for example, reduce the time between visits by customers and increase customer satisfaction, thereby increasing sales. (Specification, page 4, lines 18 - 23).

In various embodiments, a POS terminal may set a value of the coupon based on the round-up amount of a purchase. (FIG. 7 and accompanying text at Specification, page 12, line 6 - page 13, line 23)

ISSUES

Whether claims 1 - 59 claim statutory subject matter under 35 USC § 101.

GROUPING OF CLAIMS

Appellants group the pending claims as follows:

Group I - Claims 1 - 12, 48, and 54;

Group II - Claims 13 - 42, 45 - 47, 49, 50, 52, 53, 55, 56, 58, and 59; and

Group III - Claims 43, 44, 51, and 57

Appellants believe that claims in different groups are separately patentable, as explained in the following section.

ARGUMENT

As will be explained, the Examiner's rejection of claims 1 - 59 is improper at least because the claimed invention is embodied and claimed as methods, apparatus, and articles of manufacture that produce a useful, concrete and tangible result, and thus are statutory.

Furthermore, the Examiner's rejection of claims 1 - 59 is based on analyses that have no basis in law. Specifically, the Examiner has incorrectly required a physical transformation in the claims, incorrectly prohibited the mere presence of a mathematical operations in the claims, incorrectly required the presence of a physical limitation in the claims, and incorrectly required a 'practical application within the technological arts'.

Therefore, Appellants respectfully request that the Examiner's rejections be reversed.

A. The Claims of Group I Claim Statutory Subject Matter Under 35 USC § 101.

1. The claims produce a useful, concrete and tangible result and thus satisfy § 101

The claims of Group I are not directed to an abstract idea without a practical application. By contrast, the claimed invention produces a useful, concrete and tangible result, and thus cannot be rejected as lacking a practical application, as the Examiner has asserted.

The Supreme Court has construed 35 U.S.C. § 101 broadly, noting that Congress intended statutory subject matter to 'include anything under the sun that is made by man.' AT & T Corp. v. Excel Communications Inc., 172 F.3d 1352, 1354, 50 USPQ2d 1447, 1449 - 50 (Fed. Cir. 1999), citing Diamond v. Chakrabarty, 447 U.S. 303, 309, 206 USPQ 193 (1980). The Court has specifically identified three categories of unpatentable subject matter: 'laws of nature, natural phenomena, and abstract ideas' AT & T Corp., 172 F.3d at 1354, 50 USPQ2d at 1450.

The judicially-defined proscription against patenting of a 'mathematical algorithm,' to the extent such a proscription still exists, is narrowly limited to **mathematical algorithms in the abstract**. (emphasis added) AT & T Corp., 172 F.3d at 1354, 50 USPQ2d at 1450 (Fed. Cir. 1999), State Street Bank & Trust Co. v. Signature Financial Group, Inc., 149 F.3d 1368, 1374-75, 47 USPQ2d 1596, 1602 (Fed. Cir. 1998), cert. denied, 119 S. Ct. 851 (1999). "Unpatentable mathematical algorithms are identifiable by showing they are merely abstract ideas constituting disembodied concepts or truths that are not 'useful.' . . . [T]o be patentable **an algorithm must be applied in a 'useful' way.**" (emphasis added) AT & T Corp., 172 F.3d at 1355, 50 USPQ2d at 1451, quoting State Street Bank, 149 F.3d at 1373, 47 USPQ2d at 1601.

Even though a mathematical algorithm is not patentable in isolation, a process that applies an equation to a new and useful end is at the very least not barred at the threshold by § 101. Diamond v. Diehr, 450 U.S. 175, 188 (1981). A claimed invention that produces a **useful, concrete and tangible result** constitutes statutory subject matter, regardless of whether the claimed invention includes a mathematical algorithm. AT & T Corp., 172 F.3d at 1356, 50 USPQ2d at 1451; State Street Bank, 149 F.3d at 1373, 47 USPQ2d at 1601. In State Street, "the claimed data processing system for implementing a financial management structure satisfied the § 101 inquiry because it constituted a 'practical application of a mathematical algorithm, . . . [by] produc[ing] 'a useful, concrete and tangible result.' " AT & T Corp., 172 F.3d at 1356, 50 USPQ2d at 1451, quoting State Street Bank, 149 F.3d at 1373, 47 USPQ2d at 1601.

"[E]ven if the useful result is expressed in numbers, such as price, profit, percentage, cost or loss", the invention that produces that result is statutory. Id., 149 F.3d at 1374, 47 USPQ2d at 1602. When a mathematical algorithm included within a claimed process is applied to produce a

number **which had specific meaning** - a useful, concrete, tangible result - not a mathematical abstraction - that process claim satisfies § 101. AT & T Corp., 172 F.3d at 1357, 50 USPQ2d at 1452, citing Arrhythmia Research Tech. v. Corazonix Corp., 958 F.2d 1053, 1060, 22 USPQ2d 1033, 1039 (Fed. Cir. 1992) (emphasis added). See also, State Street Bank, 149 F.3d at 1374, 47 USPQ2d at 1601, citing Arrhythmia for the proposition that the claimed invention "constituted a practical application of an abstract idea ... because it **corresponded to** a useful, concrete or tangible thing. (emphasis added)

The Federal Circuit has held that a claimed processing system was patentable subject matter because the system determines a final share price - a useful, concrete, and tangible result. State Street, 149 F.3d at 1373, 47 USPQ2d at 1601. Similarly, the Federal Circuit has also held that a claimed process was patentable subject matter because it determines the value of a PIC indicator - a useful, concrete, tangible result. The PIC indicator represents information about the call recipient's PIC, a useful, non-abstract result that facilitates differential billing of long-distance calls made by an IXC's subscriber. AT&T Corp., 172 F.3d at 1357, 50 USPQ2d at 1452.

The scope of 35 U.S.C. 101 is the same regardless of the form - machine or process - in which a particular claim is drafted. AT&T Corp., 172 F.3d at 1357, 50 USPQ2d at 1451; State Street, 149 F.3d at 1372, 47 USPQ2d at 1600. Thus, Appellants arguments with respect to the pending method claims are equally applicable to pending apparatus and article of manufacture claims.

Each claim of Group I includes the limitation of "outputting a signal indicative of the upsell". As explained in the Specification, such a signal constitutes a useful, concrete and tangible result. The signal indicative of the upsell may take the form of a coupon, and by

providing coupons for change in accordance with the present invention, a business can reduce the time between visits by customers and increase customer satisfaction, thereby increasing sales.

(Specification, page 4, lines 21 - 23). An upsell to offer in exchange for the round-up amount may be offered to the customer, and, if accepted, the upsell is exchanged for the change due.

(Specification, page 11, line 21 - 23)

Each claim of Group I also includes the limitation of "determining an upsell in dependence on the round-up amount". This determined upsell is not an abstract disembodied number, but instead has a specific meaning and corresponds to a useful, concrete or tangible thing - something which may be offered to a customer.

Accordingly, the claims of Group I produce a useful, concrete and tangible result, and thus cannot be rejected as lacking a practical application.

2. The Examiner has incorrectly required a physical transformation

As best as Appellants can understand the Examiner's reasoning, the Examiner seems to imply in the First Office Action mailed April 13, 1999, page 3, section number 4, 3rd paragraph that the absence of physical transformation in a claim necessarily implies that the claim is not statutory:

Moreover, none of these claims affirmatively recite **physical transformations occurring within a computer**. In this regard, the claims are directed to an abstract idea without any limitations to a practical application within the technological arts. (emphasis added)

However, physical transformation by a claimed process is "**not an invariable requirement**, but **merely one example** of how a mathematical algorithm may bring about a useful application." (emphasis added) AT & T Corp., 172 F.3d at 1357, 50 USPQ2d at 1452. See also, Diehr, 450 U.S. at 192 (the "e.g." signal denotes that physical transformation is an example, not an exclusive requirement for satisfying § 101); Arrhythmia Research Tech., 958 F.2d at 1060, 22 USPQ2d at 1039 (Fed. Cir. 1992) (the transformation simply confirmed that Arrhythmia's method claims satisfied § 101 because the method produced a number which had specific meaning - a useful, concrete, tangible result - not a mathematical abstraction).

Accordingly, this basis for rejection under 35 U.S.C. § 101 is improper.

3. The Examiner has incorrectly prohibited the mere presence of
mathematical operations in the claims

As best as Appellants can understand the Examiner's reasoning, the Examiner seems to imply that the mere presence of mathematical operations in a claim necessarily implies that the claim is not statutory:

In reference to State Street Bank & Trust Co. v. Signature Financial Group, Inc., 47 USPQ2d 1596 (Fed. Cir. 1998), the Signature Financial Group, Inc. patent reference, Boes 5,193,056, claims entail an apparatus (a data processing system). The claims **did not calculate a value** and the claims **did not produce a calculation**. However, the apparatus processed data and allocating [sic] the percentages of each fund within the portfolio. In addition, the claims were practical because the apparatus shift [sic] money around in different funds within the portfolio. (emphasis added)

See Final Office Action mailed January 5, 2000, page 2, section number 2, 3rd paragraph.

The process step [sic] of 'generating a purchase price', 'generating a rounded price', 'calculating a round-up amount', 'determining an upsell', or 'outputting a signal', are not sufficient to meet the requirements of physical acts, because they are grounded in the abstract idea of **physically performing mathematical manipulations of data**. (emphasis added)

See First Office Action, page 2, section number 3, 3rd paragraph; Final Office Action, page 3, section number 4, 3rd paragraph.

In this regard, the claims **merely manipulate data using an abstract mathematical algorithm** without any limitation to a practical application within the technological arts. (emphasis added)

See First Office Action, page 2, section number 3, 3rd paragraph; Final Office Action, page 3, section number 4, 3rd paragraph.

However, applicants claims are method claims that are not sufficient to meet the requirements of physical act [sic], because they are grounded in the abstract idea of **physically performing mathematical manipulations of data** ('the purchase price') that is simply printed out, or outputted in signal form.

Therefor the claims are directed to non-statutory subject matter. (emphasis added)

See Final Office Action, page 2, section number 2, 4th paragraph.

The process steps of 'generating a purchase price', 'generating a rounded price', 'calculating a round-up amount', 'setting value based', 'printing on the coupon an identifier, and indication', 'receiving an indication', or 'exchanging the round-up', are not sufficient to meet the requirements of physical acts, because they are grounded in the abstract idea of **performing physical manipulating [sic] of data.** (emphasis added)

See First Office Action, page 3, section number 4, 3rd paragraph

The mere presence of mathematical operations does not imply that the claim is not statutory. Even though a mathematical algorithm is not patentable in isolation, a process that applies an equation to a new and useful end is at the very least not barred at the threshold by § 101. Diamond v. Diehr, 450 U.S. 175, 188 (1981). A claimed invention that produces a useful, concrete and tangible result constitutes statutory subject matter, regardless of whether the claimed invention includes a mathematical algorithm. AT & T Corp., 172 F.3d at 1356, 50 USPQ2d at 1451; State Street Bank, 149 F.3d at 1373, 47 USPQ2d at 1601. When a mathematical algorithm included within a claimed process is applied to produce a number which had specific meaning - a useful, concrete, tangible result - not a mathematical abstraction - that process claim satisfies § 101. AT & T Corp., 172 F.3d at 1357, 50 USPQ2d at 1452, citing Arrhythmia Research, 958 F.2d at 1060, 22 USPQ2d at 1039.

Accordingly, this basis for rejection under 35 U.S.C. § 101 is improper.

4. The Examiner has incorrectly required a physical limitation in the claims

As best as Appellants can understand the Examiner's reasoning, the Examiner seems to imply that the absence of a physical limitation in a claim necessarily implies that the claim is not statutory.

The process step [sic] of 'generating a purchase price', 'generating a rounded price', 'calculating a round-up amount', 'determining an upsell', or 'outputting a signal', are not sufficient to meet the requirements of **physical acts**, because they are grounded in the abstract idea of physically performing mathematical manipulations of data. (emphasis added)

See First Office Action, page 2, section number 3, 3rd paragraph; Final Office Action, page 3, section number 4, 3rd paragraph.

However, applicants claims are method claims **that are not sufficient to meet the requirements of physical act [sic]**, because they are grounded in the abstract idea of physically performing mathematical manipulations of data ('the purchase price') that is simply printed out, or outputted in signal form. Therefore the claims are directed to non-statutory subject matter. (emphasis added)

See Final Office Action, page 2, section number 2, 4th paragraph.

"An evaluation of the process does not show that the process performs **independent physical acts**"
(emphasis added)

See First Office Action, page 3, section number 4, 3rd paragraph.

"The process steps of 'generating a purchase price', 'generating a rounded price', 'calculating a round-up amount', 'setting value based', 'printing on the coupon an identifier, and indication', 'receiving an indication', or 'exchanging the round-up', are not sufficient to meet the **requirements of physical acts**, because they are grounded in the abstract idea of performing physical manipulating [sic] of data."
(emphasis added)

See First Office Action, page 3, section number 4, 3rd paragraph.

It is a misunderstanding of Federal Circuit case law to contend that process claims lacking physical limitations set forth in the patent are not patentable subject matter. AT & T Corp. v. Excel Communications, Inc., 172 F.3d 1352, 50 USPQ2d 1447, 1452 (Fed. Cir. 1999). This type of physical limitations analysis is of little value because "the mere fact that a claimed invention involves inputting numbers, calculating numbers, outputting numbers, and storing numbers, in and of itself, would not render it nonstatutory subject matter, **unless**, of course, its operation does not produce a 'useful, concrete and tangible result.'" AT & T Corp. v. Excel Communications, Inc., 172 F.3d 1352, 50 USPQ2d 1447, 1452 (Fed. Cir. 1999).

Accordingly, this basis for rejection under 35 U.S.C. § 101 is improper.

5. The Examiner has incorrectly required a 'practical application within the technological arts'

As best as Appellants can understand the Examiner's reasoning, the Examiner seems to imply that the invention must have a 'practical application within the technological arts' to be statutory.

"A review of the disclosure does not show a **practical application within the technological arts**"
(emphasis added)

See First Office Action, page 2, section number 3, 2nd paragraph; Final Office Action, page 3, section number 4, 2nd paragraph.

"In this regard, the claims merely manipulate data using an abstract mathematical algorithm **without any limitation to a practical application within the technological arts**" (emphasis added)

See First Office Action, page 2, section number 3, 3rd paragraph; Final Office Action, page 3, section number 4, 3rd paragraph.

The rejection is set forth in a terse manner, so that it remains unclear whether the rejection is based on a conclusion by the Examiner that the invention is not believed to be within the technological arts or that the utility of the invention is not believed to be within the technological arts. The reasoning underlying the Examiner's conclusion is likewise unclear from the rejection as imposed. Applicants are likewise unsure of the meaning of an "application within the technological arts".

The Courts have held that what is required under 35 U.S.C. § 101 is simply a practical application, not a practical application 'within the technological arts'. State Street Bank 149 F.3d at 1373, 47 USPQ2d at 1601, (claimed invention statutory because it "constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces a useful,

concrete and tangible result"). See also, State Street Bank, 47 USPQ2d at 1600 citing Diehr, (to be patentable, abstract idea must be "reduced to some type of practical application"); State Street Bank, 47 USPQ2d at 1601, citing In re Alappat, 33 F.3d 1526, 1544, 31 USPQ2d 1545, 1557 (Fed. Cir. 1994) (in banc) (claimed invention statutory because it "constituted a practical application of an abstract idea"); State Street Bank, 47 USPQ2d at 1601, citing Arrhythmia (claimed invention "constituted a practical application of an abstract idea")

Section 101 of title 35, United States Code requires that an invention for which patent protection is sought be "useful" and that it fall within one of the four enumerated statutory categories. Since each of the presented claims recites an invention within one of the statutory categories (e.g., a process) and is not an "abstract idea", the sole remaining issue is whether the claimed inventions are "useful" within the meaning of the statute.

The invention sought to be patented in the present application has an unquestioned and specifically defined utility. The inventions provide an improved method for generating coupons. There can be no question that this is a "credible" utility (i.e., it does not violate any law of nature), nor is there any doubt as to the specificity of the utility (i.e., the utility of the claimed inventions is specifically and plainly set forth in the specification). The processes claimed can by no stretch of the imagination be classified as "abstract ideas" and are thus properly defined statutory processes.

The "useful invention" or utility requirement is also to be evaluated for the *invention*, and is not dependent on the breadth of the claims. Thus, if one species of an invention claimed as a genus is found to be "useful", utility for the genus is established. Raytheon Co. v. Roper Corp., 724 F.2d 951, 958, 220 USPQ 592, 598 (Fed. Cir. 1983), cert. denied, 469 U.S. 835 (1984) ("When a properly claimed invention meets at least one stated objective, utility under § 101 is

clearly shown.”). Utility is to be evaluated in a simple “yes” or “no” fashion (i.e., does the invention as claimed possess or not possess utility). There is no subjective test for “utility” that must be deemed to be commensurate with the breadth of the claims being sought to be patented.

The suggestion in the rejection that the invention be within the “technological arts” is not a requirement under §101. To the extent that the rejection is based on the theory that the utility of the claimed processes are not “technological” in nature, this likewise cannot be supported under the interpretations of the “useful invention” requirement provided by the courts. The courts have not held inventions unpatentable under §101 on the basis that the *character* or *type* of utility of the invention is insufficient. Instead, the only test that the courts have provided for the type of utility is that the invention provide some “real world” value.

Moreover, the scope of the claims as presented encompass a variety of specific implementations of the claimed processes. Certain of these embodiments implicate the use of POS terminals to effectuate the processes. These “computer-based” species clearly fall within the broader generic definition of the claimed processes. Given that utility for a genus may be established through a recitation of utility of a species within that genus, a rejection that the generically claimed processes lack utility is clearly unfounded.

Accordingly, this basis for rejection under 35 U.S.C. § 101 is improper.

B. The Claims of Group II Claim Statutory Subject Matter Under 35 USC § 101.

The claims of Group II are not directed to an abstract idea without a practical application. By contrast, the claimed invention produces a useful, concrete and tangible result, and thus cannot be rejected as lacking a practical application, as the Examiner has asserted.

In addition to the arguments above, which are applicable to the Claims of Group II as well as the claims of Group I, each claim of Group II includes the limitation of "printing on the coupon an identifier ". As explained in the Specification, such a printed coupon constitutes a useful, concrete and tangible result. By providing coupons for change in accordance with the present invention, a business can reduce the time between visits by customers and increase customer satisfaction, thereby increasing sales. (Specification, page 4, lines 21 - 23). In various embodiments the printed coupon may include a bar code which may be read by a bar code scanner. See Specification, page 22, lines 14 - 16.

Accordingly, the claims of Group II produce a useful, concrete and tangible result, and thus cannot be rejected as lacking a practical application.

Furthermore, to the extent that the Examiner has incorrectly required a physical transformation in the claims, incorrectly prohibited the mere presence of a mathematical operations in the claims, incorrectly required the presence of a physical limitation in the claims, and incorrectly required a 'practical application within the technological arts', the above arguments are equally applicable to the claims of Group II.

C. The Claims of Group III Claim Statutory Subject Matter Under 35 USC § 101.

The claims of Group III are not directed to an abstract idea without a practical application. By contrast, the claimed invention produces a useful, concrete and tangible result, and thus cannot be rejected as lacking a practical application, as the Examiner has asserted.

In addition to the arguments above, which are applicable to the Claims of Group III as well as the claims of Group I and Group II, each claim of Group III includes the limitation of

"exchanging the round-up amount for the coupon". As explained in the Specification, such an exchange constitutes a useful, concrete and tangible result. Exchanging a round-up amount for a coupon in accordance with the present invention, a business can reduce the time between visits by customers and increase customer satisfaction, thereby increasing sales. (Specification, page 4, lines 21 - 23).

Each claim of Group I also includes the limitation of "determining an upsell in dependence on the round-up amount". This determined upsell is not an abstract disembodied number, but instead has a specific meaning and corresponds to a useful, concrete or tangible thing - something which may be offered to a customer.

Accordingly, the claims of Group III produce a useful, concrete and tangible result, and thus cannot be rejected as lacking a practical application.

Furthermore, to the extent that the Examiner has incorrectly required a physical transformation in the claims, incorrectly prohibited the mere presence of a mathematical operations in the claims, incorrectly required the presence of a physical limitation in the claims, and incorrectly required a 'practical application within the technological arts', the above arguments are equally applicable to the claims of Group III.

In view of the above, claims 1 - 59 claim statutory subject matter under 35 USC § 101, and Appellants respectfully request that the Examiner's rejection be reversed.

CONCLUSION

Thus, the Examiner's rejection of claims 1 - 59 is improper at least because the claimed invention is embodied and claimed as methods, apparatus, and articles of manufacture that produce a useful, concrete and tangible result, and thus are statutory.

Furthermore, the Examiner's rejection of claims 1 - 59 is based on analyses that have no basis in law. Specifically, the Examiner has incorrectly required a physical transformation in the claims, incorrectly prohibited the mere presence of a mathematical operations in the claims, incorrectly required the presence of a physical limitation in the claims, and incorrectly required a 'practical application within the technological arts'.


Therefore, Appellants respectfully request that the Examiner's rejections be reversed.

If any issues remain, or if the Examiner has any further suggestions for expediting allowance of the present application, the Examiner is kindly invited to contact Dean Alderucci using the information provided below.

Appellants hereby request any extension of time that may be required to make this Appeal Brief timely. Please charge any fees that may be required for this paper, or credit any overpayment, to Deposit Account No. 50-0271. A duplicate copy of this page is enclosed for such purpose.

Respectfully submitted,

January 5, 2001



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APPENDIX

1. A method for determining an upsell of a purchase at a point-of-sale terminal, comprising:
generating a purchase price of the purchase;
generating a rounded price;
calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price;
determining an upsell in dependence on the round-up amount; and
outputting a signal indicative of the upsell.
2. The method of claim 1 in which the step of generating a rounded price comprises:
generating the rounded price based on the purchase price.
3. The method of claim 2 in which the step of generating the rounded price based on the purchase price comprises:
determining a rounding multiple that corresponds to the purchase price; and
rounding the purchase price in accordance with the rounding multiple, thereby generating the rounded price.
4. The method of claim 1 in which the step of generating a rounded price comprises:
setting the rounded price to a first value if the purchase does not include a predetermined item; and

setting the rounded price to a second value if the purchase includes a predetermined item, the second value being greater than the first value, the first value and the second value being based on the purchase price.

5. The method of claim 4 in which the second value is established so that the round-up amount is within a predetermined range.

6. The method of claim 1 in which the step of generating a rounded price comprises:
determining a rounding multiple based on whether the purchase includes a predetermined item; and
rounding the purchase price in accordance with the rounding multiple, thereby generating the rounded price.

7. The method of claim 1 in which the step of generating a rounded price comprises:
setting the rounded price to a first value if the purchase does not include a premium item;
and
setting the rounded price to a second value if the purchase includes a premium item, the second value being greater than the first value, the first value and the second value being based on the purchase price.

8. The method of claim 1 in which the step of generating a rounded price comprises:
determining a rounding multiple based on whether the purchase includes a premium item;
and

rounding the purchase price in accordance with the rounding multiple, thereby generating the rounded price.

9. The method of claim 1 in which the step of generating a rounded price comprises:

counting a number of premium items included in the purchase;

setting the rounded price to a first value if the number of premium items is less than a predetermined threshold; and

setting the rounded price to a second value if the number of premium items is greater than a predetermined threshold, the second value being greater than the first value, the first value and the second value being based on the purchase price.

10. The method of claim 1 in which the step of generating a rounded price comprises:

determining a rounding multiple based on the number of premium items; and

rounding the purchase price in accordance with the rounding multiple, thereby generating the rounded price.

11. The method of claim 1 in which the step of generating a rounded price comprises:

generating a rounded price based on a price of at least one predetermined item.

12. The method of claim 1 in which the step of generating a rounded price comprises:

determining prices of items included in the purchase;

determining a maximum price of the determined prices; and

generating a rounded price based on the maximum price.

13. A method for generating a coupon, comprising:
 - generating a purchase price of a purchase;
 - generating a rounded price;
 - calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price; and
 - printing on the coupon an identifier based on the round-up amount.

14. A method for generating a coupon, comprising:
 - generating a purchase price of a purchase;
 - generating a rounded price;
 - calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price;
 - setting a coupon value based on the round-up amount; and
 - printing on the coupon an identifier that is based on the coupon value.
15. The method of claim 14 further comprising:
 - setting a coupon feature based on a condition;and in which the step of printing comprises
 - printing an identifier that is based on the coupon value and the coupon feature.
16. The method of claim 15 in which the coupon feature is a validity period.
17. The method of claim 16 in which the step of setting a coupon feature based on a condition comprises:
 - determining a time of a previous transaction;
 - determine a time interval since the previous transaction; and
 - setting the validity period based on the time interval since the previous transaction.
18. The method of claim 17 in which the step of setting the validity period based on the time interval since the previous transaction comprises

setting the validity period to be shorter than the time interval since the previous transaction.

19. The method of claim 17 further comprising:

receiving a customer identifier;

and in which the step of determining a date of a previous transaction comprises:

determining a date of a previous transaction that is based on the customer identifier;

20. The method of claim 16 in which the step of setting a coupon feature based on a condition comprises:

determining a current time; and

setting the validity period based on the current time.

21. The method of claim 20 in which the step of setting the validity period based on the current time comprises:

setting the validity period to exclude an interval that corresponds to the current time.

22. The method of claim 15 in which the coupon feature is a required item.

23. The method of claim 22 in which the step of setting a coupon feature based on a condition comprises:

receiving a customer identifier;

determining a coupon redemption that is based on the customer identifier; and

setting the required item based on the coupon redemption.

24. The method of claim 23 in which the step of setting the required item based on the coupon redemption comprises:

setting the required item to be a predetermined item if the coupon redemption is greater than a predetermined threshold.

25. The method of claim 23 in which the step of setting the required item based on the coupon redemption comprises:

determining an infrequent item that is based on the customer identifier; and

setting the required item to be the infrequent item if the coupon redemption is greater than a predetermined threshold.

26. The method of claim 22 in which the step of setting a coupon feature based on a condition comprises:

receiving a customer identifier;

determining a number of past purchases of an item, the number being based on the customer identifier; and

setting the required item based on the number of past purchases of the item.

27. The method of claim 14 in which the step of setting a coupon value based on the round-up amount comprises:

setting the coupon value based on the round-up amount and a condition.

28. The method of claim 27 in which the step of setting the coupon value based on the round-up amount and a condition comprises:

determining whether the purchase includes coupon redemption;

setting the coupon value to a first value if the purchase includes coupon redemption;

setting the coupon value to a second value if the purchase does not include coupon redemption, the second value being greater than the first value, the first value and the second value being based on the round-up amount.

29. The method of claim 27 in which the step of setting the coupon value based on the round-up amount and a condition comprises:

determining a payment type; and

setting the coupon value based on the payment type.

30. The method of claim 29 in which the step of setting the coupon value based on the round-up amount and a condition comprises:

determining whether a payment type is currency;

setting the coupon value to a first value if the payment type is currency; and

setting the coupon value to a second value if the payment type is not currency, the second value being greater than the first value, the first value and the second value being based on the round-up amount.

31. The method of claim 27 in which the step of setting the coupon value based on the round-up amount and a condition comprises:

- determining whether a frequent shopper identifier is received;
- setting the coupon value to a first value if a frequent shopper identifier is received; and
- setting the coupon value to a second value if no frequent shopper identifier is received, the second value being greater than the first value, the first value and the second value being based on the round-up amount.

32. The method of claim 27 in which the step of setting the coupon value based on the round-up amount and a condition comprises:

- receiving a customer identifier;
- determining a coupon redemption that is based on the customer identifier; and
- setting the coupon value based on the coupon redemption.

33. The method of claim 32 in which the step of setting the coupon value based on the coupon redemption comprises:

- determining a number of transactions based on the customer identifier;
- determining a number of coupons redeemed based on the customer identifier;
- calculating a redemption rate based on the number of coupons redeemed and the number of transactions; and
- setting the coupon value based on the redemption rate.

34. The method of claim 27 in which the step of setting the coupon value based on the round-up amount and a condition comprises:

receiving a customer identifier;

determining an acceptance rate that is based on the customer identifier; and

setting the coupon value based on the acceptance rate.

35. The method of claim 27 in which the step of setting the coupon value based on the round-up amount and a condition comprises:

receiving a customer identifier;

determining a number of transactions that is based on the customer identifier; and

setting the coupon value based on the number of transactions.

36. The method of claim 35 in which the step of setting the coupon value based on the number of transactions comprises:

setting the coupon value to a first value if the number of transactions does not correspond to a multiple of a predetermined number; and

setting the coupon value to a second value if the number of transactions corresponds to a multiple of a predetermined number, the second value being greater than the first value, the first value and the second value being based on the round-up amount.

37. The method of claim 27 in which the step of setting the coupon value based on the round-up amount and a condition comprises:

receiving a customer identifier;

determining a number of coupons redeemed that is based on the customer identifier; and
setting the coupon value based on the number of coupons redeemed.

38. The method of claim 37 in which the step of setting the coupon value based on the number of coupons redeemed comprises:

setting the coupon value to a first value if the number of coupons redeemed does not correspond to a multiple of a predetermined number; and

setting the coupon value to a second value if the number of coupons redeemed corresponds to a multiple of a predetermined number, the second value being greater than the first value, the first value and the second value being based on the round-up amount.

39. The method of claim 14, in which the identifier comprises a bar code.

40. The method of claim 39, further comprising:

encoding the coupon value in the bar code.

41. The method of claim 39, further comprising:

encoding a coupon feature in the bar code.

42. The method of claim 14, further comprising:

storing the coupon value in a record that is determinable from the identifier.

43. A method for generating a coupon, comprising:
- generating a purchase price of a purchase;
 - generating a rounded price;
 - calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price;
 - printing on the coupon an indication of the round-up amount;
 - printing on the coupon an indication of an upsell;
 - receiving an indication of the round-up amount on a coupon; and
 - exchanging the round-up amount for the coupon.
44. The method of claim 43 in which the indication of a round-up amount comprises a bar code.

45. A method for generating a coupon, comprising:
- generating a purchase price of a purchase;
 - generating a rounded price;
 - calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price;
 - setting a coupon value based on a predetermined multiple of the round-up amount; and
 - printing on the coupon an identifier that is based on the coupon value.
46. The method of claim 45 in which the step of setting a coupon value based on a predetermined multiple of the round-up amount comprises:
- setting the coupon value to three times the round-up amount.

47. A method for generating a coupon, comprising:
- generating a purchase price of a purchase;
 - generating a rounded price;
 - calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price;
 - determining whether the purchase includes coupon redemption; and
 - if the purchase includes coupon redemption,
 - setting a coupon value based on the round-up amount, and
 - printing on the coupon an identifier that is based on the coupon value.

48. An apparatus for determining an upsell of a purchase at a point-of-sale terminal, comprising:

a storage device; and

a processor connected to the storage device,

the storage device storing a program for controlling the processor; and

the processor operative with the program to:

generate a purchase price of the purchase;

generate a rounded price;

calculate a round-up amount, the round-up amount being a difference between the purchase price and the rounded price;

determine an upsell in dependence on the round-up amount; and

output a signal indicative of the upsell.

49. An apparatus for generating a coupon, comprising:
- a storage device; and
 - a processor connected to the storage device,
 - the storage device storing a program for controlling the processor; and
 - the processor operative with the program to:
 - generate a purchase price of a purchase;
 - generate a rounded price;
 - calculate a round-up amount, the round-up amount being a difference between the purchase price and the rounded price; and
 - print on the coupon an identifier based on the round-up amount.

50. An apparatus for generating a coupon, comprising:
- a storage device; and
 - a processor connected to the storage device,
 - the storage device storing a program for controlling the processor; and
 - the processor operative with the program to:
 - generate a purchase price of a purchase;
 - generate a rounded price;
 - calculate a round-up amount, the round-up amount being a difference between the purchase price and the rounded price;
 - set a coupon value based on the round-up amount; and
 - print on the coupon an identifier that is based on the coupon value.

51. An apparatus for generating a coupon, comprising:
- a storage device; and
 - a processor connected to the storage device,
 - the storage device storing a program for controlling the processor; and
 - the processor operative with the program to:
 - generate a purchase price of a purchase;
 - generate a rounded price;
 - calculate a round-up amount, the round-up amount being a difference between the purchase price and the rounded price;
 - print on the coupon an indication of the round-up amount;
 - print on the coupon an indication of an upsell;
 - receive an indication of the round-up amount on a coupon; and
 - exchange the round-up amount for the coupon.

52. An apparatus for generating a coupon, comprising:
- a storage device; and
 - a processor connected to the storage device,
 - the storage device storing a program for controlling the processor; and
 - the processor operative with the program to:
 - generate a purchase price of a purchase;
 - generate a rounded price;
 - calculate a round-up amount, the round-up amount being a difference between the purchase price and the rounded price;
 - set a coupon value based on a predetermined multiple of the round-up amount;
- and
- print on the coupon an identifier that is based on the coupon value.

53. An apparatus for generating a coupon, comprising:
- a storage device; and
 - a processor connected to the storage device,
 - the storage device storing a program for controlling the processor; and
 - the processor operative with the program to:
 - generate a purchase price of a purchase;
 - generate a rounded price;
 - calculate a round-up amount, the round-up amount being a difference between the purchase price and the rounded price;
 - determine whether the purchase includes coupon redemption; and
 - if the purchase includes coupon redemption,
 - set a coupon value based on the round-up amount, and
 - print on the coupon an identifier that is based on the coupon value.

54. A computer-readable medium encoded with a program for implementing a method for determining an upsell of a purchase at a point-of-sale terminal, said processing instructions for directing a computer to perform the steps of:

generating a purchase price of the purchase;

generating a rounded price;

calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price;

determining an upsell in dependence on the round-up amount; and

outputting a signal indicative of the upsell.

55. A computer-readable medium encoded with a program for implementing a method for generating a coupon, said processing instructions for directing a computer to perform the steps of:

generating a purchase price of a purchase;

generating a rounded price;

calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price; and

printing on the coupon an identifier based on the round-up amount.

56. A computer-readable medium encoded with a program for implementing a method for generating a coupon, said processing instructions for directing a computer to perform the steps of:

generating a purchase price of a purchase;

generating a rounded price;

calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price;

setting a coupon value based on the round-up amount; and

printing on the coupon an identifier that is based on the coupon value.

57. A computer-readable medium encoded with a program for implementing a method for generating a coupon, said processing instructions for directing a computer to perform the steps of:

- generating a purchase price of a purchase;
- generating a rounded price;
- calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price;
- printing on the coupon an indication of the round-up amount;
- printing on the coupon an indication of an upsell;
- receiving an indication of the round-up amount on a coupon; and
- exchanging the round-up amount for the coupon.

58. A computer-readable medium encoded with a program for implementing a method for generating a coupon, said processing instructions for directing a computer to perform the steps of:

generating a purchase price of a purchase;

generating a rounded price;

calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price;

setting a coupon value based on a predetermined multiple of the round-up amount; and

printing on the coupon an identifier that is based on the coupon value.

59. A computer-readable medium encoded with a program for implementing a method for generating a coupon, said processing instructions for directing a computer to perform the steps of:

generating a purchase price of a purchase;

generating a rounded price;

calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price;

determining whether the purchase includes coupon redemption; and

if the purchase includes coupon redemption,

setting a coupon value based on the round-up amount, and

printing on the coupon an identifier that is based on the coupon value.